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ABSTRACT

A behavioral psychotherapy program for treating depression has been developed based on a self-control or self-management model that postulates that depressed persons selectively attend to negative events and immediate consequences of events; set stringent self-evaluative standards; make negative, inaccurate attributions of responsibility for events; reward their own behavior inadequately; and punish themselves excessively. To test the effectiveness of specifying three different treatments (a behavioral target program focused on increasing activity level, a cognitive target program focused on modifying and increasing positive self-statements, and a combined program including both targets) for different populations of depressed patients, 104 college women participated in 21 therapy groups. In general, results suggested a better outcome for subgroups of subjects who had an acute onset of depression. There were no significant differences due to subject characteristics, a factor which emphasizes the generalizability of the program. Subjects high and low on positive activity frequency were equal in outcome within the cognitive target program. Within the behavioral target program, subjects who reported a high frequency of positive activities did better, and in the combined cognitive program subjects who reported a low frequency of positive activities did better. The findings suggest a need for further replication. (JAC)

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# OUTCOME OF SELF-CONTROL THERAPY FOR DEPRESSION WITH SUBPOPULATIONS

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# Outcome of Self-Control Therapy for Depression with Subpopulations

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For the past eight years, I and my students at the University of Houston and earlier the University of Pittsburgh have been developing a behavioral psychotherapy program for depression based on a self-control or self-management model of the nature of depression (Rehm, 1977). The self-control model postulates that depression can be described in terms of a set of deficits within the sequence of self-control behaviors described by Kanfer (1970). Specifically, the model as originally proposed postulates that the depressed persons: 1) selectively attend to negative events, 2) selectively attend to immediate as opposed to delayed consequences of events, 3) set stringent self-evaluative standards, 4) make negative and inaccurate attributions of responsibility for events, 5) as a consequence of the above, reward their own behavior inadequately, and 6) punish themselves excessively. Based on this model, a therapy program has been developed and refined which is administered in a group format, in a highly structured manner. The program involves didactic presentations of principles, instructional exercises to teach concepts, discussion of the application of principles to individuals and homework assignments to apply the principles to the day-to-day lives of participants. The program has been evaluated in our clinics in a series of six outcomes studies. The program has been demonstrated to have statistically and clinically significant outcome effects on depression. It has been demonstrated to be superior to waiting list and nonspecific controls although the contributions of specific components of the program have not been independently demonstrated. The program has been replicated elsewhere (Tressler and

Tucker, 1980; Glanz and Dietz, 1980; Rothblum, Green and Collins, 1980; Flemming and Thornton, 1980; and Roth, Bielshi, Jones and Parker,1981; Rogers et al, 1982).

In the studies in our laboratories, the subject population has been relatively homogeneous. Specifically, all subjects have been females between the ages 18 and 60 who, according to the selection criteria, have a moderate to severe depression describable as nonpsychotic, nonbipolar Major Affective Disorder. Although we have limited the population in our studies, nevertheless, one of our continuing interests has been the possibility of specifying certain subpopulations for which our program would be more or less effective with the ultimate goal of being able to specify different treatment regimens for different populations of depressed patients. The psychotherapy literature suggests that therapy may be more effective for subjects with certain favorable demographic characteristics. Recent advances in biological psychiatry suggest that subdiagnoses of depression based on the history and course of the disorder are predictive of outcome on chemotherapy protocols. Current psychological models of depression would suggest that different psychological deficits would predict the utility of specific behavioral or cognitive psychotherapy programs.

Within our own research, the number of subjects in prior studies has been insufficient to examine the importance of such variables in affecting therapy outcome. Our most recent study, however, has had a sufficient number of subjects to permit some exploratory examinations of the relative effectiveness of the program for various subpopulations. In this study, run at the University of Houston, 104 subjects completed the protocol as participants in 21 therapy groups over the course of two years.

## Methods

### Subjects

As in our prior studies in this series, subjects for the study were solicited from the general community by media announcement asking for women between the ages of 18 and

60 who felt they had a significant problem with depression and who would be interested in volunteering for a 10-week therapy program as part of a research project. Women who phoned in inquires were given futher information about the program and were screened on the basis of the following criteria: 1) met age limits; 2) not presently nor in the last 30 days in any form of psychotherapy for depression; 3) not taking antidepressants nor major tranquilizers; and 4) no life threatening medical illness. Interested subjects who met these criteria were given an appointment for a group testing session at which informed consent forms were signed and a battery of paper-and-pencil questionnaires were administered. Subjects scoring 20 or greater on the Beck Depression Inventory and a T-score of 70 or greater on the MMPI Depression Scale were given a second appointment for a screening interview. The screening interview was based on a structured protocol modified from the Schedule for Affective Disorders and Schizophrenia (SAD; Endicott and Spitzer, 1978). Subjects who met criteria for nonpsychotic, non-bipolar Major Affective Disorder and who were not excluded by meeting criteria for mania, hypomania, schizophrenia, organic brain syndrome, mental retardation, antisocial personality, anorexia nervosa, or during the last 12 months alcohol abuse, anxiety disorder, briquet's syndrome, drug abuse, obsessive compulsive disorder, panic disorder or phobic disorder were offered therapy. Of 896 subjects who responded to advertisements announcing the program, 708 were identified as eligible at phone contact for testing and 380 were tested. 149 subjects were identified as eligible for the study. 138 subjects began the treatment, 34 subjects withdrew prior to completion and 104 subjects completed the protocol.

The major dependent variables in the study were six measures of depression. Self-report measures included the Beck Depression Inventory and MMPI-D Scale. Pre- and posttest interviews were rated for depression on the Hamilton Depression Rating Scale and the Raskin 3-Item Rating Scale. Videotapes of the interviewers were rated by a second clinician who also made Hamilton and Raskin evaluations. These six scores were treated as dependent variables in multivariate analyses of covariance with pretreatment

scores as the covariates. The design of this study was primarily to assess three alternative forms of the self-control or self-management therapy program. The behavioral target condition focussed on increasing activity level; the cognitive target condition focussed on modifying and increasing positive self-statements; and a combined condition included both targets.

Initial analyses found no therapy condition nor therapist effects across these conditions. All conditions improved to a statistically and clinically significant degree.

In order to examine the question of the effectiveness of the program within various subpopulations, a series of exploratory multivarate analyses of covariance were performed in which the six depression variables remained as the dependent variables with pretest scores on these variables as the covariate. The design of each analysis was to test a breakdown based on one of the subpopulation variables crossed with the three therapy conditions. Thus, each MANOCOVA examined effects for subpopulation, condition and their interaction. The subpopulation was entered first into the SPSS MANOCOVA program. A large number of independent exploratory MANOCOVAs were performed. It should be noted that this involves the danger of an inflated alpha level. Thus the results should be seen as highly tentative until we are able to replicate them

## Results

### Demographics

No significant differences in therapy outcome occurred as a function of age, marital status, employment, education, income or religion. In prior studies, several of these variables have been implicated as potential predictors of therapy outcome. In general, older patients have poorer psychotherapy outcome and in depression specifically, older patients tend to have a different constellation of depressive symptoms heavily weighted with somatic or neurovegetative signs are thus held to be less amenable to

psychosocial interventions. Lower socio-economic status patients are also generally held to be poorer candidates for psychosocial interventions.

History and Course of Depression

Recent advances in biological psychiatry suggested that history and course variables of depression play important roles in predicting treatment effects. In this study, these variables produced only a couple of mild trends towards effects on therapy outcome. Depression which had a gradual onset produced a small effect for a worse therapy outcome. Pattern of course, interviewer observations of agitation or retardation, age of onset of initial depression, number of prior episodes of depession, and family history of psychological disorder did not produce demonstrable effects. Relevant to this study, interviewers were also asked to make an overall evaluation of the extent to which subjects appeared to present with behavioral deficits in accord with the description of depression described by theorists such as Lewinsohn or whether they demonstrated cognitive deficits as described by theorists such as Beck. These ratings, which incidentally showed an overlap of approximately 65% were not predictive of outcome.

Psychological Variables

A number of psychological variables were examined as possible determinants of outcome. No effects were found for IQ as measured by the Shipley Hartford Vocabulary Score. On the SCL-90, no differences were found for subjects of a higher general level of psychopathology as measured by global symptom index. In addition, none of the 9 specific dimension of psychopathology were individually predictive either. Social adjustment was measured by the Weissman Social Adjustment Scale and again no effects were found as a function of overall adjustment nor conflicts with regard to the specific areas of work, spare time, extended families, spouse, children or family unit. The Dysfunctional Attitude Scale developed by Weissman and Beck was intended to assess cognitive deficits as described by Beck. This variable did not predict outcome differentially nor did it interact with the therapy target conditions. Two measures specific to the self-control

nature of the therapy were included in the study. Our own program's Self-Control Questionnaire was designed to assess the self-control deficits hypothesized to be specific to depression. No effects were found. Using a somewhat different definition of self-control, Rosenbaum has developed a Self-Control Schedule. This measure was significantly related to therapy outcome in our program regardless of the specific condition. Having high self-report of self-control skills initially was related to a better therapy outcome in the depression program. These initial attitudes consistant with the rationale of the program lead to more improvement.

Event Schedules

Event schedules were also included in the pretest battery because they represent some theoretically relevant predictors of outcome specific to the design of this study. Four event schedules producing a total of 12 variables were involved. Subjects were asked to assess 80 categories of activity and 80 categories of cognition or self-statement as they may have occurred in the last 30 days. Within each category, 40 positive and 40 negative activities or cognitions were listed. For each activity or cognition, subjects were asked to indicate both the frequency of its occurrence and its valence or intensity, In each case, an additional variable was derived from the cross product of the frequency and valence in order to produce a magnitude of experienced positive and negative activities and cognitions. Lewinsohn and his colleagues have suggested that low levels of activity should be an indication that an activity increase program is called. Similarly low levels of positive cognitions should be indicative of the desirability of a cognition modification program. Thus, the hypothesis with regard to these variables is that they would produce an interaction between the subpopulations defined by event levels and the therapy conditions. Two effects were found. First there was an interaction effect between the frequency of positive activities and therapy condition. In summary, subjects high and low on positive activity frequency were equal in outcome within the cognitive target program. Within the behavioral target program, subjects who reported a high

frequency of positive activities did significantly better; and in the combined cognitive programs subjects who reported a low frequency of positive activities did significantly better. This effect is of marginal statistical significance, however, it is consistent across all of the six depressed variables. It is clearly inconsistent with Lewinsohn's recommendations. I have yet to come with a convincing explanation for the effect. A statistically stronger effect was found for the frequency of negative activities. Subjects who began therapy reporting a high frequency of negative activities tend to do better overall in the self-management therapy program.

## Discussion

In summary, the results suggest a better outcome for subgroups of Subjects who have an acute onset, who have a high number of negative events in the last month and who have initial positive events did better in the behavioral targert program and those with a low number of positive events did better in the combined target condition. Again however, I want to point out the marginal nature of these findings and the need for replication.

The clearest finding is the relative lack of any significant differences due to subject characteristics. This has its bad and its good features, bad for prediction, good for generalizability.

The program was designed to enhance generalizability. While it is highly structured in form, it is adaptable to a variety of life circumstances and problem contents. While our age range excludes the very young and the elderly, there are a variety of problems covering life span issues across our 18 to 60 range. The program has proven generalizable, also in the sense that it has been used elsewhere with different

populations. It has been used with males in a VA setting, with a medically ill sample, with psychiatric inpatients and with community mental health center outpatients. We are considering possible adaptations of the program to both older and younger subjects. There are other groups to which behavioral programs for depression could also be addressed. Depression is a major complication in recovery from heart attack.

Finally, the matching of subgroups of depressed patients to programs continues to be elusive. It may be that our therapy programs are too nonspecific to detect interactions with subject variables. It may be that we are not looking at some relevant patient characteristics. While we as a field have made some strides in developing behavioral and cognitive therapies for depression, we have considerable room left for improvement. Matching programs to patients is but one way I try to increase our success rates.

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Demographics

| Variable | Levels | % | N | Main Effect | P | Interaction | P |
|---|---|---|---|---|---|---|---|
| Age | $\leq 40$ | 58.7 | 104 | .306 | ns | 1.820 | ns |
| | $\geq 40$ | 41.3 | | | | | |
| Marital Status | Single | 41.3 | 104 | .501 | ns | .381 | ns |
| | Married | 58.7 | | | | | |
| Employed | no | 32.7 | 104 | 1.057 | ns | .729 | ns |
| | yes | 67.3 | | | | | |
| Education | $\leq 12$ | 27.9 | 104 | .925 | ns | 1.078 | ns |
| | $> 12$ | 72.1 | | | | | |
| Income | 5-20,000 | 36.6 | 101 | .480 | ns | 1.07 | ns |
| | 20-35,000 | 42.5 | | | | | |
| | 35+ | 20.9 | | | | | |
| Religion | Protestant | 44.7 | 103 | .859 | ns | .960 | ns |
| | Catholic | 27.2 | | | | | |
| | Jewish | 16.5 | | | | | |
| | Other | 11.7 | | | | | |

## Psychological Variables

| Variable | Level | % | N | Main Effect | P | Interaction | P |
|---|---|---|---|---|---|---|---|
| Shipley-Hartford IQ | Low | 45.6 | 103 | 1.217 | ns | 1.042 | ns |
| | High | 53.4 | | | | | |
| SCL-90R Global Symptom Index | $< 57$ | 48.1 | 104 | .295 | ns | .948 | ns |
| | $\geq 57$ | 51.9 | | | | | |
| Social Adjustment Scale | $< 1.8$ | 48.5 | 103 | .613 | ns | 1.209 | ns |
| | $\geq 1.8$ | 51.5 | | | | | |
| Dysfunctional Attitude Scale | $< 155$ | 50.0 | 98 | .290 | ns | 1.123 | ns |
| | $\geq 155$ | 50.0 | | | | | |
| Self Control Scale | $\leq 100$ | 49.5 | 103 | 3.171 | .007 | .724 | ns |
| | $> 100$ | 50.5 | | | | | |
| Self Control Questionnaire | $< 125$ | 50.4 | 103 | 1.601 | ns | 1.102 | ns |
| | $\geq 125$ | 49.6 | | | | | |
| Recent Life Events | $< 13$ | 45.6 | 103 | 1.055 | ns | .681 | ns |
| | $\geq 13$ | 54.4 | | | | | |

## Subtypes, History and Course

| Variable | Level | % | N | Main Effect | P | Interaction | P |
|---|---|---|---|---|---|---|---|
| Subtype | Chronic | 26.5 | 98 | 1.315 | ns | .985 | ns |
| | Intermittant | 29.6 | | | | | |
| | Episodic | 27.6 | | | | | |
| | Single Episode | 16.3 | | | | | |
| Age of Onset | $\leq$ 18 | 47.0 | 66 | .422 | ns | .602 | ns |
| | $\geq$ 18 | 53.0 | | | | | |
| Onset Duration | $\leq$ 1 day | 27.2 | 103 | 1.868 | .05 | 1.241 | ns |
| | 2 days to one month | 15.5 | | | | | |
| | $>$1 month | 57.3 | | | | | |
| Prior Episodes | $\leq$ 3 | 22.8 | 92 | .794 | ns | .797 | ns |
| | $\geq$ 3 | 77.2 | | | | | |
| Family History | yes | 66.4 | 101 | .350 | ns | 1.436 | ns |
| | no | 33.6 | | | | | |
| Agitated | yes | 53.4 | 103 | .575 | ns | .546 | ns |
| | no | 46.6 | | | | | |
| Retarded | yes | 35.0 | 103 | .702 | ns | .679 | ns |
| | no | 65.0 | | | | | |
| Behavioral Deficit | yes | 80.9 | 94 | .728 | ns | 1.242 | ns |
| | no | 19.1 | | | | | |
| Cognitive Deficit | yes | 81.5 | 92 | .654 | ns | .641 | ns |
| | no | 18.5 | | | | | |

Event Schedules (N = 98)

| Variable | Level | % | N | Main Effect | P | Interaction | P |
|---|---|---|---|---|---|---|---|
| **Positive Activity** | | | | | | | |
| Frequency | Low | 43.9 | 98 | .518 | ns | 4.969 | .03 |
| | High | 56.1 | | | | | |
| Intensity | Low | 51.0 | 100 | .936 | ns | .646 | ns |
| | High | 49.0 | | | | | |
| Product | Low | 48.0 | 98 | 1.530 | ns | .913 | ns |
| | High | 52.0 | | | | | |
| **Negative Activity** | | | | | | | |
| Frequency | Low | 54.2 | 98 | 2.832 | .01 | .932 | ns |
| | High | 45.8 | | | | | |
| Intensity | Low | 49.5 | 99 | .490 | ns | 1.252 | ns |
| | High | 50.5 | | | | | |
| Product | Low | 49.0 | 98 | .513 | ns | .995 | ns |
| | High | 51.0 | | | | | |
| **Positive Cognitions** | | | | | | | |
| Frequency | Low | 48.0 | 100 | .918 | ns | .811 | ns |
| | High | 52.0 | | | | | |
| Intensity | Low | 51.0 | 100 | .719 | ns | .468 | ns |
| | High | 49.0 | | | | | |
| Product | Low | 50.5 | 99 | .845 | ns | .295 | ns |
| | High | 49.5 | | | | | |
| **Negative Cognitions** | | | | | | | |
| Frequency | Low | 51.0 | 100 | .964 | ns | 1.195 | ns |
| | High | 49.0 | | | | | |
| Intensity | Low | 51.0 | 100 | .872 | ns | .610 | ns |
| | High | 49.0 | | | | | |
| Product | Low | 51.5 | 99 | 1.498 | ns | .625 | ns |
| | High | 48.5 | | | | | |